has the College of Physicians done for medicine and for medical education? Although it was one of the first founded of the Professional Guilds, we have had repeated occasion to point out in these columns that in the opinion of the most competent authorities, medical education even to-day is the worst organised and least effective.

The latter part of the extract gives Prof. Odling's view as to the easy admission afforded by professional eminence into the Royal Society. As regards engineers, we have never heard of any one being elected into the Royal Society except on the ground of his contributions to science. Commercial or professional eminence has, so far as we know, not been considered. As regards doctors, owing to the ancient ties of the Royal Society with medicine, we believe that it has been the custom to consider, in judging their claims, that marked eminence in their profession should be taken into account; but professional eminence *alone* does not decide the choice. In saying this we do not express our own opinion merely; and we must add that there is no written law in the matter, the decisions each year resting with the Council of that year, and the Council, as is known, is an ever-changing body.

The latter part of Prof. Odling's address, which we have not space to give at length, deals with the advantages which in his opinion are likely to result from the new organisation. He also gives some paragraphs from the preamble of the charter under which the Institute has now been incorporated. One of these paragraphs runs as follows:—"That the said Institute was not established for the purposes of gain, nor do the members thereof derive or seek any pecuniary profits from their membership." We confess we find it difficult to harmonise this extract from the charter with the general drift of the part of the address now under consideration; for although Prof. Odling frankly acknowledges, to quote his words, "to those of us who have already attained the higher steps on the ladder of success it can scarcely afford any personal advantages whatever," it is clear that this is not to obtain universally. Among the "advantages" we find not only "gain to the public" but "gain to ourselves"; we read of "noteworthy advantages, social and material, to the persons" who form the Institute. We also read: "Among its other objects, the Institute of Chemistry exists undoubtedly for the purpose of improving the position and prospects of professional chemists"; we further find that the Institute "will add alike to the social and substantial attractiveness of the chemical profession."

We do not find too many references to researches not of a directly remunerative kind, but Prof. Odling makes one concession: he thinks that among the members of the Institute "some proportion, at any rate, will find the pursuit of research the vocation for which they are especially qualified, and for which they will, IN THE SEED-SOWING TIME OF THEIR LIFE, be willing to make, as others have made before them, even considerable professional sacrifices."

Ilias in nuce. In the phrase we have put into capitals we have the real key to the address. It would appear that the life of a chemist should be divided into two periods—Seed-time and Harvest. Research may be the seed, the harvest must be gold. The continued pursuit of truth, the continued love of science for its own sake, may be left to the unwise. The ideal chemist is one who uses research only as an investment. He carefully limits it to his earliest years. By it he is to gain a reputation as a man of science. His reputation thus gained procures for him a post of high scientific honour and position. The "seed-sowing time" is now over. The golden harvest is ripe. It has to be reaped and garnered. The duties of the position of honour obtained by the original investment are therefore to be thrown to the winds in order that this may be done. He is now a man of "professional eminence": he is now on "the higher steps of the ladder of success."

Does any one think that his electors have a right to protest or his friends to lament? Certainly not; they have no such right. Their feelings have simply arisen from their ignorance of the Whole Duty of a chemical Man.

In these days of rapid intercommunication among nations we know that Prof. Odling's address will be carried to our brethren beyond the seas and to many centres of scientific activity in other lands. We wish it to be known, therefore, that the spirit it breathes is an alien spirit, repugnant to students of pure science in this country.

CENTRAL AMERICAN COLEOPTERA

Biologia Centrali-Americana. Insecta: Coleoptera. Vol. I. Part I. By H. W. Bates. (London: R. H. Porter, 1881-84.)

THIS part of Godman and Salvin's great work is now complete, and though called a part is practically a volume, with introduction, indices, and completed pagination; its publication has extended over four years. It deals with the two great families of carnivorous beetles—the Cicindelidæ and Carabidæ—and consists of 316 pages of letterpress and thirteen plates of coloured figures. The number of species of the two families recorded from the region is 1086, belonging to 154 genera. Nine new genera and about 450 new species are described, this latter figure including, however, a certain number of species characterised for the purposes of this work in the *Proceedings* of the Zoological Society for 1878 and a few others similarly dealt with in the *Annals and Magazine of Natural History*. In his introduction the author touches on some points of geographical distribution, and states that the inclusion of the central highlands of Mexico and Guatemala in the Nearctic province by Wallace is not supported by these insects, but that on the contrary they markedly confirm the essentially Neotropical character of the Central American fauna. He also is inclined to adopt the opinion that the Central American region comprises two distinct sub-provinces, as proposed by Salvin from his study of the birds, the line of division passing probably across Nicaragua; and considers that even the more northern of these sub-provinces is not a southern extension of the Nearctic province, but rather a remarkably distinct sub-province of the Neotropical fauna.

In the body of the work the distribution and extent of each genus is briefly stated, and, so far as known, every

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locality within the region for each species is recorded; thus, as so large a number of new species are described, it is evident that the volume will be an indispensable necessity to every future student of the Neotropical Adephaga. It contains moreover what is practically a new classification of the family Carabidæ. Its author has long been known and respected as an entomological systematist, for it is now nearly twenty-five years since he inaugurated a rational classification of the Rhopalocera or butterflies. He has been recognised since the death of Baron Chaudoir as the one entomologist possessing an extensive yet intimate knowledge of the Carabidæ of the whole world. But Chaudoir, though he published a crowd of valuable memoirs on the family, died without leaving behind him any general work on its classification. It is therefore a matter for congratulation that the author of this beautiful volume has presented us with a systematic arrangement as complete as the faunistic nature of the work permitted; it is one that requires, indeed, comparatively little supplement from the faunæ of other countries to render it quite complete. Assisted by the labours of Latreille, Dejean, Lacordaire, Schiödte, Leconte, and Chaudoir, and availing himself largely of the valuable work recently published by Horn, he has been able to form of the numerous sub-families, which are the equivalents of Horn's tribes, aggregates of greater importance, which he terms subdivisions. The family Carabidæ is of such enormous extent—12,000 species being known, with a vast number of others to come—that the necessity of some series of intelligible aggregates subordinate to the division, but superior to the tribe or sub-family, is undeniable, and Mr. Bates' attempt to furnish such a series is therefore of great value, even though his subdivisions are at present capable of only loose and partly traditional definition. The division II, of Carabidæ comprises eight of these subdivisions based chiefly on the form and sexual clothing of the male tarsi and on the form of the apices of the elytra. It is evident that the classification of such an enormous complex as the Carabidæ will require for its perfection the combined efforts of many naturalists, and if Mr. Bates's subdivisions are sufficiently natural they will be gradually evoluted and perfected by others, and we may therefore indicate that the first of them, viz. the Diversimani or Pedunculati seems scarcely tenable. The variability of structure of an organ amounts only to a negative, not a positive statement, and is therefore useless for practical purposes; and if we add to this, that other characters now considered in the Carabidæ to be of much importance, such as the number of glabrous joints at the base of the antennæ, are also subject to much variation in the aggregate, it is evident that a change in its composition is inevitable. We would also venture to call in question the propriety of treating the Pseudomorphinæ as merely a sub-family of Truncatipennes. Horn accords them the much higher rank equivalent to the "division" of Bates, and as they are to a considerable extent synthetic between the universally recognised two great divisions of Carabidæ, it is probable that this will, from a systematic point of view, prove nearly correct. Bates, however, only expresses himself with considerable hesitation on this point, and as the group is chiefly Australian, it will devolve on some student of the Australian fauna to work out this question of primary importance to the classification of the Adephaga.

The thirteen plates with which the volume is adorned supply coloured figures of no less than 325 species representing upwards of 100 genera. The figures are lithographs coloured by hand, and though they are, we believe, about the best that can be obtained in this country at present, they are certainly not equal to some of the refined lithographic figures of insects that have in recent years been produced in Austria; they are, however, so good as to enable the species to be recognised from them with certainty, and will therefore be a very welcome boon to entomologists.

Messrs. Godman and Salvin, the editors of the work, are to be congratulated on this satisfactory completion of the first part of the Coleoptera. No faunistic work that has hitherto been published gives anything near to so complete an idea of the vast wealth of tropical nature in insects, it being usual for only a few of the more conspicuous forms of this class to be described or illustrated; and if the Insecta can be completed in a manner at all corresponding to this first instalment, we shall have a work quite without rival in its way, and that will be pointed out as an illustration of what can be accomplished in our country and generation by the liberality and energy of private individuals. The assistance rendered to science by the publication of this volume has been supplemented by the presentation to the nation of the magnificent collection of Geodephaga accumulated by Mr. Godman for the purposes of the work; it consists of 986 species, and nearly 8000 specimens, something like 400 of the species being represented by the typical examples, and is now in the British Museum of Natural History at South Kensington.

D. S.

OUR BOOK SHELF

Outlines of Natural Philosophy. By J. D. Everett. (London: Blackie and Sons, 1885.)

"THIS book is intended to supply the widely-felt want of a work at once easy enough for a class reading-book and precise enough for a text-book." "The woodcuts with which the work is profusely illustrated are not thrown in for mere ornament, but have been carefully *designed* and selected for the elucidation of the text, and are fully explained." Had it not been for the single word which we have put in italics in the second of these extracts from the Preface, we should have at once concluded, from its general tenor, that this work was written to explain a long series of plates (most of them unmistakably French) which have already done duty in various elementary books. We were reminded of Warrington's exhortation, when he brought the proof-plate to Pendennis:—"Now, boy, here's a chance for you. Turn me off a copy of verses to this."

These plates form a wonderful collection. Some are really excellent; not only from the scientific, but even from the artistic, point of view. In others, notably Figs. 88, 93, 94, 101, 102, 130, 160, the artistic predominates over the scientific to such an extent as to render them positively misleading to the beginner. Thus in Fig. 88 the shadow of a sphere, cast by a luminous point on a plane, is drawn in such a manner as to outrage all the Laws of Projective Geometry; and the pleasing sketch Fig. 93 can only be explained (if at all) by a most peculiar state of the air over the still water. Thus, the eaves of a house are depicted as seen by reflection at a portion of the water-surface, from which (as the drawing

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